



# DECUS

## PROGRAM LIBRARY

DECUS NO.	8-288
TITLE	GRAYCONV (GRAY CODE TO BINARY CODE CONVERTER)
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SOURCE LANGUAGE	PAL D

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/14-NOVEMBER-1969-C-BRUIJN-DIGITAL-EQUIPMENT-THE HAGUE
/
/
/GRAY CODE TO BINARY CODE CONVERTER
/TO USE IT ENTER WITH GRAY NUMBER IN AC LEFT ADJUSTED
/THE ROUTINE IS LEFT WITH THE BINARY NUMBER IN THE AC
/RIGHT ADJUSTED
/
/
/METHOD IS AS FOLLOWS
/
/
/MOST SIGNIFICANT BIT IN GRAY CODE AND BINARY CODE
/ARE EQUAL
/
/BIT-N (BINARY EQUALS
/BIT-N (GRAY) AND BIT N-1 (BINARY EXCLUSIVE ORED
/
/MCNTR HAS TO BE SET TO MINUS THE NUMBER OF
/BITS TO BE CONVERTED
/PRIOR TO ASSEMBLING
/
/IN THIS EXAMPLE IT IS SET TO MINUS 10
/
/

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BIN      0230
CNTR     0231
CONV     0205
GRAY     0200
MCNTR    0225
M4000    0226
SAVE     0227

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0200  0000  GRAY,  0
0201  3227          DCA      SAVE      /STORE TEMPORILY
0202  3230          DCA      BIN        /CLEAR RESULT
0203  1225          TAD      MCNTR      /
0204  3231          DCA      CNTR      /SET      COUNTER
0205  1227  CONV,  TAD      SAVE      /START CONVERSION
0206  7104          CLL  RAL
0207  3227          DCA      SAVE      /GET NEW BIT IN THE LINK
0210  1230          TAD      BIN        /GET THE NEW BIT
0211  7430          SZL          /IN RESULT BUT SAVE
0212  1226          TAD      M4000      /THE LINK
0213  7004          RAL          /
0214  3230          DCA      BIN        /
0215  1227          TAD      SAVE      /EXCLUSIVE OR
0216  7430          SZL          /GRAY(N)
0217  1226          TAD      M4000      /WITH BIN(N-1)
0220  2231          ISZ      CNTR      /READY?
0221  5206          JMP      CONV+1    /NO
0222  7200          CLA          /YES
0223  1230          TAD      BIN        /GET THE RESULT
0224  5600          JMP  I  GRAY      /EXIT
0225  7766  MCNTR,  -12
0226  4000  M4000,  4000
0227  0000  SAVE,   0
0230  0000  BIN,    0
0231  0000  CNTR,   0

```

